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Chapter Eighty-six

Access Control

The regulated limitation of access is called access control and is accomplished on new projects in Indiana by the purchase of Limited Access Right-of-Way (L.A. R/W). Access control is a proven effective method to provide a safe environment for the highway user and preserves the investment in the geometric and capacity elements of a highway design. Full control of access means that connections are provided only with selected public roads through interchanges. Partial control of access allows connections with selected public roads and with selected drives necessary to serve the abutting property. The drives necessary to serve the property may be on local service roads, on frontage roads or directly connected with the highway, depending on the type of project. Cost studies should be made to determine the economics of each situation.

86-1.0 ACCESS STUDIES

86-1.01 Definitions

In addition to the definitions discussed in Section 85-1.02 and Section 40-5.0, the designer should consider the following:

1. Landlocked Property. A property is considered legally landlocked where it is left without access by the purchase of limited access right-of-way across its existing access or where a physical barrier (e.g., a high fill, stream channel relocation) has been constructed across its existing access or property frontage.

2. Local Service Road. The term "Local Service Road" may be defined as any road or street designated on the right-of-way plans to provide access to one or more properties. The term also applies to a proposed road or street open at one end only and designed specifically for service to abutting properties and adjacent areas. The use of the terms "Access Road" and "Frontage Road" is prohibited.

86-1.02 Preparation of Cost Studies for Access vs. Landlocking

Whenever during the design of a project a property is left without access, a study should be conducted to determine whether it is more economical to provide access to the property or to leave it

without access. Occasionally, access studies may not be necessary if it is obvious by inspection of the plans that it would not be feasible to provide access. Conversely, there may be cases where it is obvious that access should be provided without preparing an access study.

The designer should prepare a rough estimate to determine the construction costs per meter of the local service road, considering the amount of grading required, the typical paving section and drainage structures required. The designer will also need to determine the total area landlocked and the area required for the service road. Figure 86-1A, Comparative Cost Study for Access and Frontage Roads (Form R/W-16), should be completed for each landlocked property showing the comparative cost study. Where there are two or more landlocked properties, the information on each property should be incorporated onto the form shown in Figure 86-1B, Local Service Road Study (Multiple Properties). All backup data should be included with Form R/W-16. Where more than one service road alternative has been studied to provide access to a property, the most practical and cost-effective alternative should be selected.

Figures 86-1D and 86-1E illustrate completed Form R/W-16 for a sample project shown in Figure 86-1C.

The designer will forward Form R/W 16 to the Design Division's project manager. The project manager will forward this information to the Land Acquisition Division for completion and recommendation.

86-1.03 Design Considerations for Local Service Roads

When designing the local service road, the designer should consider the following:

1. Minimum Criteria. Use the local county road minimum design criteria for the type, thickness and width of the roadway section and for the minimum right-of-way requirements. It will be the responsibility of the designer to get this information from the officials of the county involved. Existing design guides should be used to determine the applicable surface type and any exceptions based upon economic or legal factors as requested by the Land Acquisition Division. If no county criteria exist, use minimum AASHTO criteria or the local criteria presented in Chapters Fifty-three and Fifty-five.

2. Closure. It will be the responsibility of the designer to ensure that all local service roads which form closed circuits close mathematically.

3. Access. Local service roads must connect to the public highway system. Local service roads must not be established for the purpose of crossing through one owner to connect

between two non-contiguous residues of another owner unless a further connection is made to the public highway system. Otherwise, the access road would have two dead ends and would not be of public utility. Consequently, the right-of-way cannot be condemned. Because public maintenance would be impractical, its transfer to any county or municipal authority would be prevented.

4. Landlocking. Where there is not a substantial difference in the estimated costs between landlocking versus construction of a local service road, the designer, in conjunction with the Right-of-Way representative, should recommend landlocking the parcel. If the comparative cost study indicates that the construction of a local service road is justified, the typical section for the road should meet the minimum local agency criteria; see Item 1 above. The Right-of-Way representative will review the comparative cost study to determine the justifications for landlocking versus the construction of the local service roads at the time of the preliminary field inspection.

5. Dead Ends. Additional right-of-way should be acquired at the end of dead-end local service roads to accommodate a cul-de-sac where development or local agency criteria require such action.

6. Local Service Road Terminus. A local service road that provides access to several properties should end at the boundary of the property of the terminal owner. Treat any road work necessary beyond that point as driveway construction for which temporary right-of-way should be acquired.

7. Right-of-Way Widths. Once the engineering and economic feasibility of a local service road has been established, select a right-of-way width which would best fit the usage of the lands it is intended to serve, provide the least disturbance practical to neighboring properties, and consider all construction costs. When considering the potential uses of the property, zoning restrictions (including minimum county or municipal criteria for highways and streets) are highly important factors. Existing ordinances may be secured for consideration as documentation affecting the market value of the land. In making design decisions on right-of- way widths for local service roads, the designer should consider zoning because of its influence upon potential land use and to avoid local service road right-of-way widths which are inconsistent with the zoning. With a narrow right-of-way width, temporary right-of-way may be required to accommodate minor grading, etc.

8. Cattle Pass and Other Private Underpasses. If a private underpass is provided, it should be justified by the Land Acquisition Division. The appropriate R/W plan and profile sheet should carry the note as follows: "Structure No. _____ (Cattle Pass) Included to Mitigate R/W Damages."

86-1.04 Preliminary Field Check

The Preliminary Field Check plans should show the most reasonable means of providing access to all lands not to be landlocked. Several different service road locations may be studied to access the same property. The designer should complete the access study form (Form R/W-16) in Figure 86-1A for each proposed service road location. This form, together with a set of Preliminary Field Check Plans, should be ready for the Land Acquisition Division representative at the Preliminary Field Check. The Land Acquisition Division representative should also complete Form R/W-16 and the multiple property form in Figure 86-1B, if required, and return it to the Design Division as a part of the Preliminary Field Check Report.

If access problems are discovered after the time of the Preliminary Field Check, forward this information to the Land Acquisition Division Chief, by memorandum for the project manager's signature, requesting that the above-mentioned forms be completed and returned to the Design Division with the recommendations regarding access versus landlocking. Processing of forms and accompanying correspondence will be through the Design Division's project coordinator.

86-1.05 Federal Highway Administration

Normally, access studies and recommendations will be prepared and reviewed in-house and approved by the Design Division Chief. This includes projects both exempt and not exempt from FHWA oversight. However, if a unique problem arises, provide an extra set of plans at the Preliminary Field Check stage for the FHWA. Include one copy of each of the forms discussed in Section 86-1.02 and a complete set of plans showing all access provisions. This material should be transmitted by letter for the signature of the Design Division Chief with definite recommendations in the letter listing the property owner and a recommendation to either provide access or landlock the particular property.

Access provisions as recommended by the Department may be included in the right-of-way plans after they have been reviewed and approved by the FHWA.

86-2.0 DESIGN CONSIDERATIONS

86-2.01 Interstate Routes Right-of-Way

Full access control will be used on all Interstate routes, and the right-of-way will be designated as Limited Access Right-of-Way (L.A. R/W).

86-2.02 Non-Interstate Routes

For non-Interstate routes, the following will apply.

1. Freeway Designs. Full access control will be used on all freeway designs and the right-of-way designated as L.A. R/W.

2. Divided Roadways. Access control on divided facilities will consist of the following:

    a. New Location. Partial access control should be used on this type facility. Access to the new facility usually will only be at selected public roads. Conduct cost studies to determine the need and effectiveness of local service roads to serve abutting landowners.

    b. Existing Location with Additional Right-of-Way. The addition of lanes and other safety features require a considerable expenditure of funds. In addition, the physical taking of land usually adds a considerable cost to the project. The acquisition of access control and construction of local service roads is well justified because it helps to prevent obsolescence of the design and helps to assure future capacity and safety.

    Use partial control of access on this type of project. Access to the facility usually will only be by selected public roads. Consider using local service roads to provide reasonable access to abutting properties. It may be necessary to provide direct access to an abutting parcel. Private direct access should be minimized. Adverse impacts should be analyzed and/or cost studies made to determine the best access alternative.

    c. Existing Location within Existing Right-of-Way. It is desirable to use partial control of access on this type of project. Access control that will give as much preference as practical to the highway user but yet serve the developments and abutting properties without the need for INDOT to construct local service roads is desirable. On a divided lane facility, access points on alternate sides of the highway should be opposite each other and located at crossovers if practical to minimize points of potential traffic conflicts. Where properties abutting the highway are numerous with narrow frontage, it may not be economically feasible nor practical to acquire access rights.

3. Two-Way Facilities. This type facility is usually a connector route providing access between communities and to the higher type roadways. On new locations, it is desirable to provide partial access control that will give preference to the highway user. On existing alignment, it is recognized that developments and abutting properties must be served. The designer should provide reasonable access and minimize the right-of-way costs, as practical.

86-2.03 Limited Access Right-of-Way on Crossroads at Interchanges

The limited access right-of-way requirements on crossroads at interchanges are shown in Figures 86-4A, 86-4B, 86-4C, 86-4D, 86-4E, and 86-4F. The figures are titled as listed below.

86-4A	L.A. R/W At Interchanges (Case I)
86-4B	L.A. R/W At Interchanges (Case II)
86-4C	L.A. R/W At Interchanges (Case III)
86-4D	L.A. R/W At Interchanges (Case IV)
86-4E	L.A. R/W At Interchanges (Case V)
86-4F	L.A. R/W At Interchanges (Case VI)

86-2.04 Openings in Limited Access Right-of-Way

Where openings in the L.A. R/W are required, the designer should consider the following:

1. Width. When a project is designated a "Partially Controlled Access" facility and some access points are permitted on the L.A. R/W, provide a 16-m minimum opening at the R/W line. Openings larger than 16 m should be provided where necessary to accommodate the land use and to avoid excessive damage to adjoining lands; however, openings wider than 18 m are usually not necessary unless the driveways are skewed. The opening for all driveways should be measured at right angles to the centerline of the driveway outside the L.A. R/W line, 8 m on each side for a 16-m opening. See Figure 86-2A, L.A. R/W Openings (Horizontal Curves), and Figure 86-2B, L.A. R/W Openings (Angled Approaches). No dimensions are required on E (End L.A. R/W) and B Begin L.A. R/W). It is the responsibility of the designer to provide a minimum width for county road and street approaches consistent with county and/or city requirements or criteria.

2. Tabulations. Tabulate all openings in limited access right-of-way using the centerline stationing on the respective plan and profile sheet as shown in Figure 86-2B$_1$, Access Openings Tabulation Example

3. Designations. When designating right-of-way openings on the plan and profile sheets, the designer should consider the following:

   a. Indicate "End Limited Access Right-of-Way, Access Control Line and *(type)* Fence" locations by noting the station and offset distance. The symbol [E] may be used provided a legend is given. All fence should either be chain link type fence (CLTF) or farm field type fence (FFTF). Use the correct abbreviations on the plans rather than the complete description; see Chapter Fourteen.

   b. Indicate "Begin L.A. R/W, ACL & *(type)* Fence" locations by providing the station and offset distance. The symbol [B] may be used provided a legend is given.

   c. Designate "R/W" across any private or commercial approach. However, do not provide designations across railroad right-of-way, streets, county or State highways, navigable streams or lakes. If a railroad is abandoned, L.A. R/W across the old railroad right-of-way may be considered.

   d. All "Begin Fence" and "End Fence" points should be given a station and offset distance from a control line, except as noted in Item 1 above.

   e. Typical examples for designating openings are provided in the figures in Section 86-4.0.

4. Designating Approaches. On plan and profile and interchange sheets, indicate the type of drive with the note "*(width)* Class *(type)* Drive Req'd." Also include the station location and an arrow pointing to the right-of-way for drive construction. Include the drive details on the approach table.

86-2.05 Bypasses

Indiana Statutes require that wherever INDOT constructs a bypass around any city or town, the Department must designate and establish the highway as a limited access facility.

86-2.06 Improvements Within the Limited Access Right-of-Way

No part of a private improvement will be permitted inside the limited access right-of-way. Any deviation from this policy must be approved in advance by the Design Division Chief and the Federal Highway Administration, where applicable.

86-2.07 Railroads

Limited access right-of-way should not be shown across operating railroad right-of-way. The description of the opening should be as discussed in Section 86-2.04. On projects other than Interstate projects where the new roadway parallels a railroad, it will not be necessary to take limited access right-of-way along the railroad. Special consideration, however, should be given wherever more than the minimum distance exists between the highway and the railroad, and there is a possibility of commercial development on this property. Do not leave an area large enough to permit later development between a highway and the railroad which might result in a request for access to a limited access facility at some future date.

86-2.08 Access to Adjoining Properties with a Common Approach

Figure 86-2C illustrates the preferred method for providing access to adjacent properties with a common approach.

86-3.0 FENCING

86-3.01 Warrants

In general, all limited access right of way should be fenced. Exceptions to this criterion may include the following:

1. through a floodplain where the fence would be below high water;

2. on new or reconstruction work where the property is a residence or a business and has a maintained lawn;

3. parallel to existing railroad right of way (see Section 86-2.07);

4. where entrances are relatively close and short runs of fence would provide minimal benefit;

5. where an existing fence is considered adequate or has been requested to remain by the property owner;

6. where physical features (e.g., large cuts, public lands, heavily wooded areas) discourage the development of unapproved access points; or

7. other unique situations which may preclude the practicality and need for fence.

For an interstate rehabilitation project, the need to repair or replace the right-of-way fence should be discussed at the field check. If the field-check recommendation is different than the recommendation in the scope, it should be noted in the field check minutes.

The guidelines for fence repair or replacement to be used are as follows:

1. For a partial 3R project, the fence design life is about 10 years. Hence, if the fence will last 10 years, a quantity of fence patching should be determined.

2. For a crack and seat project, the fence design life is about 15 years. Hence, if the fence will last 15 years, a quantity of fence patching should be determined.

3. For a pavement rubblization and replacement project, the fence design life is about 25 to 30 years. Therefore, the fence should be replaced.

86-3.02 Application

Fence used to define and control limited access right-of-way is normally placed on the access control line. Two common exceptions to this rule are at separation structures and large culverts. The fence is usually terminated at the near corner of a bridge structure and begun again at the far corner. The fence may be either terminated at one side of large culverts and started at the other side or carried over the top of the culvert.

Provide chain link type fence in front of houses (lawn areas) and in urban and suburban areas or other areas where aesthetics may be important to the occupant (e.g., motels, offices, schools, churches). Farm field type fence should generally be used at all other locations. Short sections of farm field type fence should not be used where it would detract from the appearance of the installation. The Engineer may change the type of fence shown on the plans upon receipt of reasonable written justification from the property owner.

Wherever a limited access right-of-way will be fenced, place the following note on the first sheet: "All limited access right-of-way (L.A. R/W) is to be fenced with chain link type fence (CLTF) or farm field type fence (FFTF) where specified in the plans."

86-3.03 Fence Posts

Group 1 fence posts shall be used where new fence is required. Group 2 fence posts shall be used for existing fence which requires repair or replacement. The fence post type must be identified where fencing requirements are shown on the plan and profile sheets as in the example notes as follows:

"L.A.R./W., A.C.L. & F.F.T.F. w/ Gp. 1 Posts Required"
or
"___ m of C.L.T.F. w/ Gp. 2 Posts Required"

86-4.0 ACCESS CONTROL FIGURES

The following figures illustrate INDOT's limited access right-of-way policies and fencing practices.

1. L. A. R/W at Interchanges. Figures 86-4A through 86-4F illustrate the application of limited access right-of-way at interchanges. The following are shown.

    a. Case I. Figure 86-4A illustrates outer ramp connections with a divided facility in a rural or urban area.

    b. Case II. Figure 86-4B illustrates a typical at-grade ramp connection for an undivided facility in a rural or an urban area.

    c. Case III. Figure 86-4C illustrates outer ramp connections with a divided facility where the divided facility is transitioned from a two-lane facility in a rural area.

    d. Case IV. Figure 86-4D illustrates an at-grade ramp connection with a divided facility where the divided facility is transitioned from a two-lane facility in a rural area.

    e. Case V. Figure 86-4E illustrates outer ramp connections with a divided facility where the divided facility is transitioned from a two-lane facility in an urban area.

f. Case VI. Figure 86-4F illustrates an at-grade ramp connection with a divided facility where the divided facility is transitioned from a two-lane facility in an urban area.

2. Limited Access Control. Figures 86-4G through 86-4 O illustrate typical examples for access control for facilities crossing a freeway. The following examples are provided.

a. Figure 86-4G illustrates where the access control is carried along the crossroad over the freeway.

b. Figure 86-4H illustrates where a fenced and a non-fenced crossroad passes under the freeway.

c. Figure 86-4 I illustrates where a fenced and a non-fenced railroad passes under the freeway.

d. Figure 86-4J illustrates where a crossroad is closed and where a railroad is abandoned.

e. Figure 86-4K illustrates where the freeway passes under a crossroad left at its original grade.

f. Figure 86-4L illustrates where the freeway passes under a crossroad and the crossroad has been elevated.

g. Figure 86-4M illustrates where the freeway passes over a navigable river, stream or lake.

h. Figure 86-4N illustrates where the freeway passes over a non-navigable river, stream or lake.

i. Figure 86-4 O illustrates where the crossroad passes under a freeway with a wide median.

j. Figure 86-4P illustrates where the freeway passes under a relocated crossroad.